NWS FORM E-5 U. S. DEPARTMENT OF COMMERCE | HSA OFFICE: RNK
NOAA, NATIONAL WEATHER SERVICE BLACKSBURG, VA

MONTHLY REPORT OF RIVER/FLOOD CONDITIONS

TO: NATIONAL WEATHER SERVICE
HYDROMETEOROLOGICAL INFO CENTER
1325 EAST-WEST HIGHWAY
SILVER SPRING, MD 20910

| **REPORT FOR:**
| **September 2010**

| **Date: 10/7/10**

|**Signature:** Peter Corrigan

Summary: September 2010 saw the first river flooding within the Blacksburg Hydrologic Service Area (HSA) since late March, as an extended dry spell was abruptly terminated by two very wet systems that occurred over the last five days of the month. Prior to these two events, drought conditions were making a strong comeback across much of the area. Rainfall for the month varied considerably but it was generally much wetter in the east and drier in the west. Monthly totals at NWS cooperative stations ranged from a low of 1.27" at McCross (MCRW2) in Greenbrier County, WV to a high of 9.07" at Martinsville Filter Plant (MARV2) in Henry County, VA. The monthly average at 72 NWS Cooperative stations was 4.40" versus the normal September mean of 3.81" (1971-2000 data) or 115 percent of average. For the 7th consecutive month temperatures were well above average across the region, running about 2.5 to 3.5 degrees over normal. They ranged from a low of 65.6°F at Blacksburg (+2.6°) to a high of 73.2°F at Danville (+2.8°). At both Bluefield and Danville it was among the top ten warmest Septembers on record (6th at Bluefield, 7th at Danville).

The month was almost completely uneventful from a hydrologic standpoint the first 25 days of the month with only widely scattered showers late on the 10th and into the 11th. Portions of the New and Holston river valleys picked up from 0.25 to 0.75 inches, with lesser amounts elsewhere. By the 3rd week of the month the U.S. Drought Monitor depicted D0 or Abnormally Dry conditions overspreading nearly the entire HSA, with D1 or Moderate Drought showing up in parts of southeast West Virginia and far western Virginia. Several streams and rivers reached record low flows for the date around this time.

Just as the drought was intensifying a major change in the weather pattern began to develop around the 25th as a powerful upper-level low was carved out over the southeastern U.S. Several weak centers of low pressure formed over the Gulf Coast area from the 26th to 28th and pushed northeast along a stationary boundary bringing very high moisture in from the Gulf and Atlantic Ocean. Precipitable water exceeded 2 inches off the southeast U.S. coast and some of this very deep moisture was pulled northward into the piedmont of the Carolinas and Virginia. With the strong southeast flow at 850 mb a significant upslope component formed as well, with the highest amounts of rain falling along and east of the Blue Ridge. Storm total rainfall was generally 1 to 2 inches in the western and eastern sections and 3 to 5 inches in the central HSA, the Blue Ridge and foothills. Figure 1 below shows the 72-hour totals from this initial event. Due to the very dry antecedent conditions and rainfall rates that remained mostly under 0.25" per hour, there was very little runoff from this prolonged event.

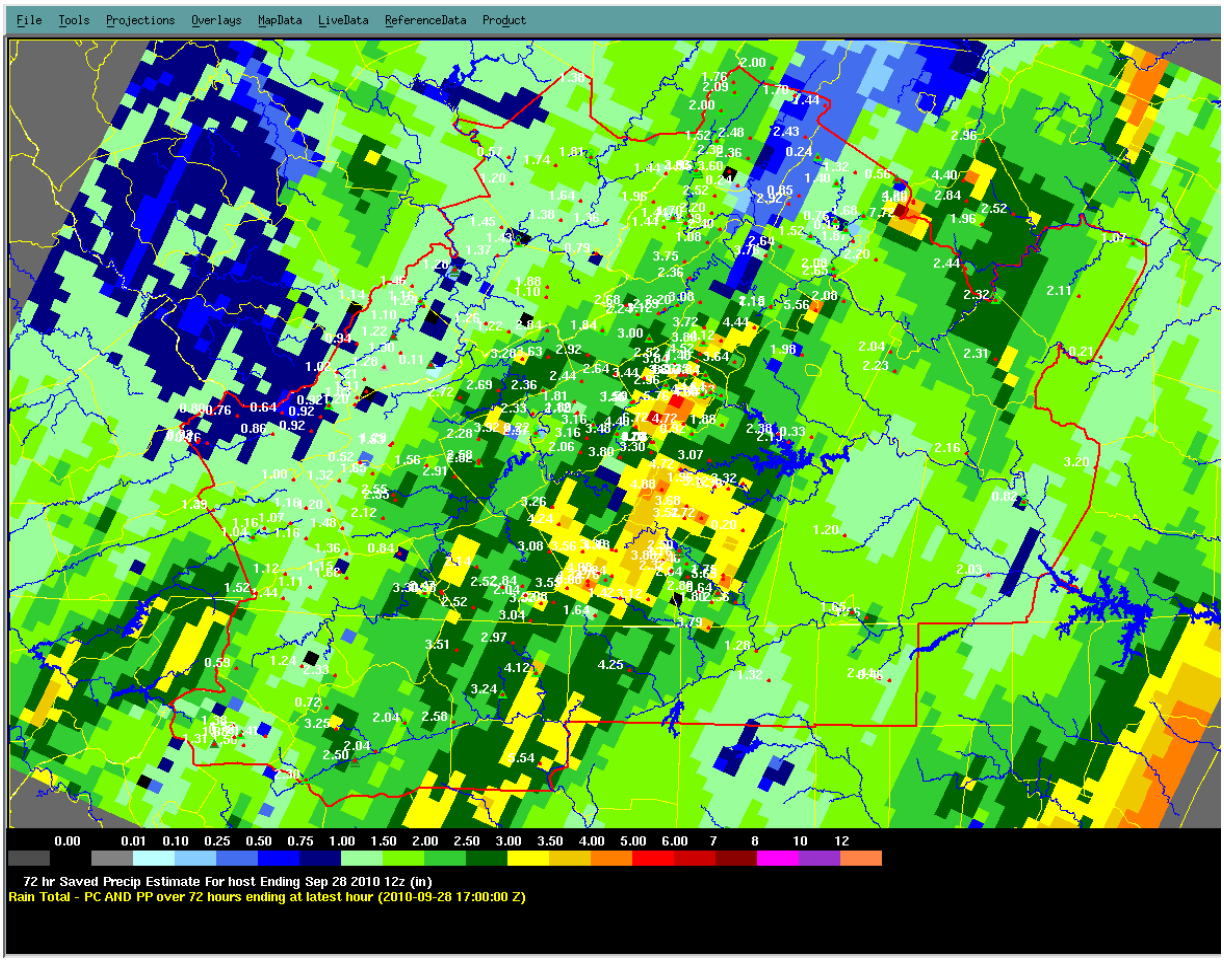

Figure 1. 72-hour MPE Rainfall (with rain gages) RNK HSA – 12Z, Septmber 26-28, 2010

Round two of the 1-2 event began in earnest during the evening hours of the 29th as remains from Tropical Storm Nicole moved across North Carolina and eastern Virginia. Rainfall rates increased during the overnight hours with the heaviest amounts falling from the Blue Ridge eastward. There was a much sharper western cutoff to this precipitation pattern, with very little falling west of the Blue Ridge and heavy rains to the east. The heaviest rains were concentrated from Rockingham County, NC through Henry County, VA and into southern Franklin County, VA. Several IFLOWS gages (MAOV2, JOEV2) showed rates of 1 to 1.5 inches per hour between about 06-12Z, although radar estimates were considerably lower. This prompted several Flash Flood Warnings to be issued across these areas. Later reports indicated significant small stream flooding, numerous road closures and at least one evacuation in Henry County. Very sharp rises were observed on some large rivers as well including the Smith River below Philpott Dam and parts of the Dan River. The Smith River at Martinsville (SMMV2) crested at 10.49' (11580 cfs) the highest observed value since September, 1996. The top ten 24-hour rainfall amounts ending at 12Z on the 30th are shown in Table 1 below.

Table 1 – Top ten 24-hour Precipitation amounts: RNK HSA – valid 12Z, September 30, 2010

SHEF ID	Station	County	Type	Precipitation
MAOV2	MARROWBONE RES.	HENRY	IFLOWS	6.87
JOEV2	JONES CREEK	HENRY	IFLOWS	6.63
CHSV2	CHESTNUT KNOB	HENRY	IFLOWS	5.24
MTVV2	MARTINSVILLE HYD ELEC.	HENRY	IFLOWS	4.93
MARV2	MARTINSVILLE FILTER PLT.	HENRY	COOP	4.72
BD0004VA	MONETA 3.7 SW	BEDFORD	COCORAHS	4.37
HUDV2	HUDDLESTON	BEDFORD	COOP	4.10
IRIV2	IRISH GAP	ROCKBRIDGE	IFLOWS	4.08
RDVN7	REIDSVILLE	ROCKINGHAM	COOP	4.00
FR0004VA	ROCKY MT. 3.1 SE	HENRY	COCORAHS	3.97

Precipitation continued through much of the 30th, especially in the far eastern and northeastern parts of the HSA as the remains of Nicole shifted northward. These amounts were tabulated on the 1st of October but 3-day totals exceeded 10 inches over parts of Henry County with widespread 3 to 5 inch amounts in the eastern half of the HSA. Flood Warnings were issued late on the 30th for the Dan River from Danville downstream to South Boston and for the Roanoke River from Brookneal downstream through Randolph. Crests from these flood events occurred in the first few days of October so the flood stage information will be in next month's E-3 section of this report.

NWS FORM E-3

U.S. DEPARTMENT OF COMMERCE
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FLOOD STAGE REPORT

HYDROLOGIC SERVICE AREA: **Blacksburg, VA (RNK)**

MONTH: **September** YEAR: **2010**

RIVER AND STATION	FLOOD STAGE (FEET)	ABOVE FLOOD STAGE		CREST		
		FROM	TO	STAGE (FEET)	DATE	TIME (UTC)
Dan River						
Danville (DVLV2)	17	9/30/10	Oct.	-	Oct.	-

Non-Routine Hydrologic Product Summary (Sep):
Flood/Flash Flood Watches (FFARNK): 2
Flood Advisories (Urban/Small Stream - FLSRNK): 3
Flash Flood Warnings (FFWRNK): 4
Areal Flood Warnings (FLWRNK): 2
River Flood Warnings (FLWRNK - forecast points): 9

cc:
MIC RNK
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LMRFC
OHRFC
MARFC